ARCHITECTVRE

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PLATES AND ILLUSTRATIONS

EDITORIAL

MR. F. LIVINGSTON PELL MAKES SUGGESTIONS AS TO THE EXCESSIVE COST OF COMPETITIVE DRAWINGS—THE ACCESSORIES OF A HOUSE

DEAR MR. FORBES:

The subject of the editorial in the July number of "Architecture," regarding the inordinate cost of competitive drawings, is of such importance to the profession that I venture to offer some suggestions looking toward the reduction of this expense, which is an unnecessary one.

No doubt the relative cost of the preliminary studies in a competition will always be an unknown quantity, as it is dependent on whether the competitor has a solution which develops easily and consistently, and on the capability of his organization for this special kind of work. The cost of the final drawings, however, can and should be controlled. It is due partly to the form, scale and number of sheets called for in the programme and partly to the cumbersome methods used in making them. The enormous annual expenditure chargeable to these two causes could be reduced without sacrificing the value of the drawings as a means of making a comparative judgment, or their usefulness for purposes of exhibition and publication.

To correct the principal causes of expense,—i. e., the excessive number and scale of required drawings, the only finished drawings *allowed* by the programme should be those necessary to a judgment of the comparative merits of the schemes submitted. This requires in most cases but one plan and one elevation. All other sheets now called for are of use to the judges only as showing whether practical conditions have been fulfilled, and they should therefore be simply diagrams; unrendered, and at a scale smaller than that of the two or three principal drawings. These diagrams could be at 1/32-inch scale. They should in the case of plans show only the walls, openings, stairs and sizes and location of rooms, omitting all indication of floors, ceilings, furniture and even base lines. In the case of sections no interior decoration should be shown and the minor elevations should be only partially drawn and indicated in block, as one would make a working drawing. No competitive drawings should exceed 1/16-inch scale.

The reduced number of sheets handed in to the judges of the competition under this scheme would work an enormous saving to them in handling and hanging, and they could actually arrive at a better and quicker judgment with two finished drawings of each set before them than if confronted, as they now are, with four or five times as many sheets as they really need for a proper comparison.

As to the second cause of expense,—i. e., the actual cost of making the final drawings, this can be decreased in two ways by the use of mechanical processes: the first for the transferring of tracing paper images to Whatman paper, and the second for the enlargement from a small scale to the final scale. The evolution of the drawings from the "preliminaries" up to the "finals" consists of a succession of tracing paper studies made one over the other, but the final tracings must be reproduced on Whatman. This reproduction can be accomplished by mechanical means (and we have such an electric machine in this office) which gives a pencil image sufficiently perfect to be used as a final drawing for all but the principal sheets, while for the latter it gives a clear image to put into ink. The saving of time and cost by this method over that of redrawing is a considerable item, and we have used these rubbed drawings for finals, simply silhouetting the sections or plans in ink and handing them in as finished drawings.

The enlargement of competitive drawings from one scale to another by hand involves another unnecessary expense. It can be done more quickly by a photographic process, and with less loss of technique (as well as more cheaply), than by the tedious process of redrawing. In fact, if the judges who desire large drawings would allow it, there is no real reason why photographic enlargements should not be received as final drawings, but the enlargement process is principally of use in going from the scale of the preliminary studies to the final scale.

The ideal process of making competitive drawings, then, would be as follows: Preliminary studies made of all drawings required, at a small scale; two drawings required as "finished" enlarged photographically to final scale, traced, and transferred mechanically to the final sheet where they are inked in and rendered. All minor drawings traced, transferred mechanically to Whatman paper, the sections of walls blocked in, and handed in without further elaboration.

As a matter of fact, architects invariably make the drawings more elaborate than called for. If they will confine their efforts to the two principal drawings and make the rest merely explanatory, we will hear less complaint of the excessive cost of competitive drawings.

Yours truly,

F. Livingston Pell.

TOO often the architect permits his interest in a house to flag when the structure is complete, as far as it is under contract, but it is really very far from being complete in the sense of being livable. Such things as wall paper, judicious disposition of furniture, and selection of lighting fixtures in the interior of a house, and the planting, fences, etc., around the exterior are habitually undertaken by the client, who is after all no more competent to design or to direct these portions of his investment than he is the building itself. Now with a client of extraordinary taste and unusual training excellent, if not completely perfect, results may be thus produced; a client of ordinary taste will select for the interior such wall papers and furnishings as happen to suit his fancy without much regard for the architectural design of the rooms. Of course where the architect knows in advance that certain furniture has got to be used, he will adapt his interiors to be in harmony with this furniture, but as very often happens he has no knowledge of what is going to be placed in the rooms which he has designed, and makes the trim, etc., to conform to the style of the exterior, a thing of course perfectly proper to do, but which quite often is not satisfactory because a client does not carry out the style of the designs in the furnishings, etc. Of course there are certain clients who will not stand interference in what they consider their particular province, but there are many clients, one might almost say most clients, who will welcome a word of suggestion from the architect, and a few who are even willing to pay for it, and if the subject of furnishings and wall paper is tactfully introduced by the architect good results will follow.

In the exterior the same thing is true, and is of even greater importance since few people see the interiors by comparison with the multitudes who pass by a house, and the architect who does not insist on designing fences, gates, walks, trellises, or other architectural accessories of the exterior is as much to blame as the client if bad ones are built; and the proper setting for the house is almost as valuable as intrinsic design. The supervision of the planting and grading also falls properly within the province of the architect, and where a landscape architect is employed he should be under the control of the architect for such part of his work as comes in immediate conjunction with the house, or which even echoes motives used in the house.

This question was discussed at a meeting between the Society of Landscape Architects and the Architectural League of New York some years since, and the landscape men agreed with the architects that all such portions of landscape work as were in close conjunction with the house, and were designed to form a setting for it, should properly be controlled by the architect, but that all landscape work, not very closely connected with the house, including the design of such architectural features as might be intended to form accents or points of interest in the landscape work, should be under the control of the landscape architect, whether they were designed by him or not. This seems a very sensible course, since it gives each of the men control over that part of the work in which his share is most important, and the result thus secured will be more attractive than could possibly be gotten by two men of different tastes and training working independently. It will require considerable tact to carry the scheme through without friction, since it is always difficult for professional men to work together in agreement, because there is no definite standard in design, and what is good or what is bad is largely a matter of taste. This way of working is not infrequent between architects and decorators, and architects who habitually work with decorators will eventually select for recommendation only men upon whom they can rely for sympathetic co-operation, and as the field of landscape architecture broadens and a landscape architect is employed on all jobs instead of a few only, the same co-operation will become possible, since there will be men enough to choose from.

An architect may not be paid for this work, and may find it impossible to convince his client that he should be paid, but professional pride should compel him to interest himself in these details, regardless of the compensation.

III. ENGINEERING FOR ARCHITECTS

BY DEWITT CLINTON POND

Mr. Pond had charge of the practical course in structural design at Columbia University. He was extremely successful in instructing men who have had little knowledge of mathematics, and these articles have been written with that in view.

TO determine the size of beams strong enough to carry a series of concentrated loads, it is necessary to study the theory of the subject. Our American ideal of being practical is not to be condemned, but, unless the architect grasps, to a small extent, the theory back of all this engineering work, he is apt to become the slave of the handbook.

In Fig. 13 a diagram, representing a simple beam carrying three concentrated loads, is shown. The beam has a span of twenty feet and the loads are five, four, and two tons respectively located eight, fifteen, and nineteen feet from the left support. In Article I, where a simple beam

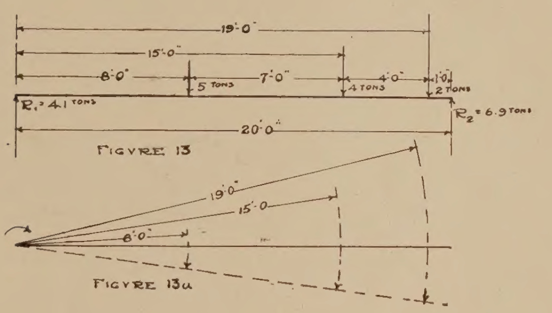


FIGURE 13

FIGURE 13a

was considered, there was a uniformly distributed load and the forces exerted at each support were equal. In this case, however, it is obvious that there will be a different force at R_1 from that at R_2. The loads are placed on the right side of the beam and so, at the first inspection, it might be assumed that the right reaction will be greater than the left. In order to find out if this is true, and, at the same time, to determine the exact amount of loading on each support, the following process is employed.

If R_2 were removed, and the beam were allowed to swing freely around R_1, there would be a tendency to rotate around the left support as shown in Fig. 13a. Remembering the definition, in the first article, that a moment is the tendency to produce rotation around a point, known as the centre of moments, it is plainly seen that there would be a moment around R_1, and this will equal the sum of *all* the moments caused by *all* the loads. R_1 becomes the centre of moments. The five ton load will produce a moment of 40 foot-tons around R_1. The four-ton load, having a lever arm of fifteen feet, will produce a moment of 60 foot-tons. A smaller moment of 38 foot-tons will be caused by the two tons located nineteen feet from R_1. As a result the total tendency to rotate around the left support is given as follows:

5 tons x 8 feet = 40 foot-tons.
4 " x 15 " = 60 " "
2 " x 19 " = 38 " "
138 " " total.

Unless an upward moment is used to counteract this downward moment there will be rotation around the left reaction. The only upward force that can possibly produce this moment is the right reaction (R_2). This reaction acts at a distance of twenty feet from R_1, and the upward force that it would have to exert on the beam to produce equilibrium is given by the following equation: R_2 x 20 feet = 138 foot-tons, or $R_2 = 138 \div 20 = 6.9$ tons.

To obtain the left reaction, the same method can be employed, the only difference being that R_2 will be taken as the centre of moments. In this case the results are:

2 tons x 1 foot = 2 foot-tons.
4 " x 5 feet = 20 " "
5 " x 12 " = 60 " "
11 tons 82 " " total
$82 \div 20 = 4.1$ tons as the load on R_1.

As a rule the left reaction is obtained in a much simpler manner. The sum of the reactions must equal the sum of all the downward loads, otherwise there would be a tendency to push the beam either up or down. If the right reaction is obtained, the left one is determined by simply subtracting R_2 from the total load. By arranging the computation as shown above, the total load is given by plain addition. From the 11 tons subtract 6.9 tons, and the remainder is 4.1 tons. The second computation is unnecessary except as a check.

Take a second problem, the diagram for which is shown in Fig. 14. Here we have a uniform load as well as two concentrated loads. There need be no hesitation about attacking the new condition, as a uniform load is treated in exactly the same manner as a concentrated one. First obtain the *total* uniform load. Then find the distance from the centre (centre of gravity) of the load to the point taken as the centre of moments. The moment around this centre is the product of the total load multiplied by the distance. In other words, the uniform load acts exactly like a concentrated load which has been placed at the centre of gravity of the distributed weight. The load per foot is usually denoted by small w, and the total weight by large W. If l is the span, and w the weight per foot, then W = wl. If the architect always uses the large W as a basas for his calculation, he will avoid many disturbing complications that follow the use of the smaller letter. In the diagram, shown in Fig. 14, R_2 is obtained by the following calculation.

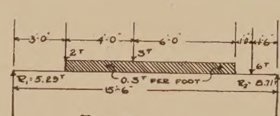


FIGURE 14

2 tons x 3 feet = 6 foot-tons.
3 " x 7 " = 21 " "
0.3 tons x 10 = 3 " x 8 " = 24 " "
6 " x 14 " = 84 " "
14 " 135 " "
$135 \div 15.5 = 8.71$ tons $= R_2$.
$14 - 8.71 = 5.29$ tons $= R_1$.

The architect can check the calculations by taking moments around R_2. It is worth noting that if R_1 is taken as the centre of moments, R_2 is obtained. One of the most frequent mistakes of beginners is to give the value of the reaction obtained by the calculations to the reaction use as the centre of moments.

The fact that it is always easy to check results makes it possible for the architect to originate his own problems and be absolutely sure that his answers are correct. He can take spans of any convenient length—twelve, sixteen, or twenty feet—and can assume any kind of loading. If

the reactions are found in the proper manner the results will always check.

In case we have a simple beam, unsymmetrically loaded, the first calculations are made to find the reactions. The second process is to find the maximum bending moment. When there are concentrated loads, which may be placed in any position whatever, the point where the maximum bending moment is going to occur is unknown.

It is obvious, that when there is a single concentrated load, as shown in Fig. 15, the maximum bending is going to take place directly under the load. Take the point c, at the load, as the centre of moments, and determine the tendency to produce bending around this point. The right reaction is 8 tons—check this—and the distance from c is 5 feet. So the bending around c is caused by a moment of 8 tons x 5 feet=40 foot-tons. The left reaction (R_1) causes a bending moment of 4 tons x 10 feet=40 foot-tons, which equals that produced by R_2. This is correct, for, if one moment were greater than the other, rotation would take place around c and the beam would not be in a condition of equilibrium.

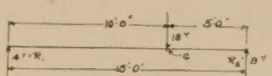


Figure 15

The first impulse of a beginner is to use the 12-ton load to find the bending at c. It seems plain that this load causes bending, and, as it creates the loads on the reactions, it does. But the 12-ton load acts *through* the point c. There is no lever arm, and, therefore, it produces no direct bending.

The fact that the maximum bending occurs at the point c is so plain that it needs no further explanation. When, however, there are several loads as in Figs. 13 and 14, it requires some calculation to find the exact spot where the greatest moment is going to occur.

The next statement must be taken by the architect without proof. That is: the maximum bending occurs where zero shear exists. This means that where there is no tendency for the beam to fail by shearing it is most apt to fail by bending. To prove this it is necessary to resort to calculus, but all that the architect need realize is, that to find the point of greatest bending, it is necessary to find the point of no shear.

Fig. 3 shows a beam, uniformly loaded, failing by shearing at the supports. In any case the greatest shear is found at the reactions and in the case of the uniformly distributed load there can be no tendency to shear at the centre of the beam, as the upward reactions (R_1=R_2=½W) would be counteracted by the downward weight of one-half of the wall at the right or left of the centre. At this point the downward force becomes equal to the upward force and the shear becomes zero. The diagram that expresses this is shown in Fig. 16. Lay off a distance, upward, at R_1 equal to the left reaction, and lay off at R_2 a distance downward, equal to the right reaction. At the centre there is no shear. Connect the points with a straight line and the shear diagram is drawn. The shear at the left support equals R_1 and steadily decreases as the distance increases away from the reactions, until at the centre the shear is zero. From there on the shear increases until it reaches the right support where it equals R_2. The line representing the shear caused by a uniform load is always a sloping line and the total drop is equal to the total load.

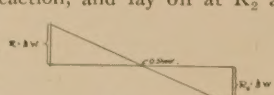


Figure 16

Concentrated loads have a different diagram. In Fig. 14, if a weak spot should occur at any point between the left support and the first load, the upward reaction (R_1) would shear off the beam at that point. The shear will remain the same for all points between the reaction and the first load. This is shown in the shear diagram (Fig. 17). At the point where the first load is located, the shear caused by R_1 will be offset by the downward load of five tons. This will cause a minus shear of 4.1 — 5.0=—0.9 tons shear. There would be no change in shear until the next load is reached where the minus shear of —0.9 — 4.0=—4.9 tons will occur. The two-ton load will cause a minus shear of —4.9 — 2.0=—6.9 tons, which will remain the same for all points between the last load and the right reaction. When R_2 is reached the upward force of 6.9 just counteracts the downward (minus) shear.

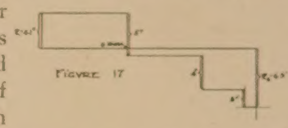


Figure 17

In Fig. 18 a shear diagram is shown for the loading given in Fig. 14. The only difference between this diagram and that in Fig. 17, is that the uniform load gives a sloping line, instead of a "step" as a concentrated load would. The total drop of the sloping line is equal to the total uniform load. The distance "a" plus the distance "b" should equal W. The shear diagram gives graphical proof that the sum of the reactions must equal the sum of the loads.

For the beam shown in Fig. 13, the loads will give a maximum bending moment at the point where the five-ton load is located, as the shear passes through zero at that point. This moment must equal 4.1 tons x 8 feet=32 foot-tons. To prove that this is the maximum, take the moments at the four-ton load. (4.1 x 15) — (5 x 7)=26.5 foot-tons. The moment under the small load—two tons—will be (4.1 x 19) — (5 x 11) — (4 x 4)=77.9 — (55 + 16)= 6.9 foot-tons. This result checks with the fact that the tons, equals 8 tons. So 32 x 12 32 x 12 inch-tons. S taken in manner: M=32 foot-tons, or, lus is found in the following is determined, the section modu- the maximum bending moment x 1 foot=6.9 foot tons. Once the two-ton load is 6.9 tons moment caused by R_2 around =8 x I/c. I/c=32 x 12/8=48. A fifteen-inch I-beam weighing forty-two pounds per foot will be strong enough to carry this load.

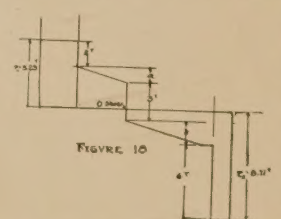


Figure 18

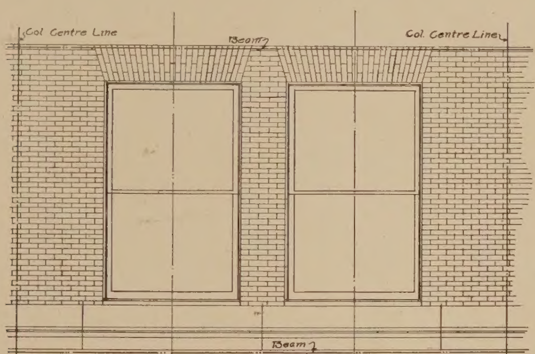
For the beam in Fig. 14 the maximum bending is found at the concentrated load of three tons. M, in this case, equals 5.29 x 7 — (2 x 4) — (0.3 x 4 x 2)=37.03 — 8 — 2.4=26.63 foot-tons. Taking moments at the right as a check, the results are, 8.71 x 8.5 — (6 x 7) — (0.3 x 6 x 3)=26.63 foot-tons. The section modulus is 26.63 x 3/2=39.94, and a twelve-inch, forty-pound I-beam will be required for these loads.

The processes, given above, can be re-stated briefly, as follows: First, determine the reactions. Second, draw the shear diagram and find the point of no shear. Third, determine the bending moment at this point. Fourth, find the section modulus and the size of beam required.

Now to reduce all the theoretical discussion to practical considerations, consider the wall load, shown in Fig. 19. The wall is one foot thick and is pierced by windows, which are 5′-8″ wide by 9′-0″ high. Below the windows and running the entire length of the wall is a stone course which is two feet thick. The sill of the windows is two

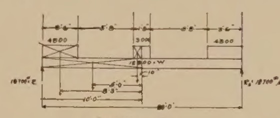
feet above the flange of the beam. The steel columns are 20′-0″ apart and are located so the loading on the wall beams will be symmetrical. The distance between the upper flanges of the wall beams will be 12′-4″. This gives a wall panel 12′-4″ x 20′-0″. The weight of the brick over the windows is carried down to the beam by the piers and the mullion. These brick weights will be considered as concentrated loads and the stone will be taken as distributing its weight uniformly over the entire beam. The loading of the beam is shown in Fig. 20. To get these loads the following process is employed:

The distance from the centre line of the columns to the centre line of the windows is 6′-4″ and the area of brick included between these lines is (10′-4″ x 6′-4″) minus one-half the window area which is (9′-0″ x 2′10″). This



FIGVRE 19

gives 65.4 square feet minus 25.5 square feet, which equals approximately 40 square feet. As the wall is one foot thick, the weight of this area is 40 x 1 x 120=4,800 pounds. This is the load brought down by each pier. The load brought down by the mullion is obtained by finding the weight of the brick area between the centre lines of the two windows. (7′-4″ x 10′-4″) — (5′-8″ x 9′-0″)=24.77 square feet. 24.7 x 1 x 120= approximately 3,000 pounds. The uniform load of the stone, which is two feet high, two feet thick, and twenty feet long, is 80 x 160=12,800 pounds. As the loads are symmetrically distributed, each reaction will be equal to one-half of the total load, or 4,800 + 3,000 + 12,800+4,800= 25,400/2=12,700 pounds.



FIGVRE 20

The maximum bending moment will be in the centre of the beam and will be equal to the sum of all the moments taken at the left of this point. 12,700 x 120″ — (4,800 x 99″ + 12,800/2 x 60″ + 1,500 x 10″)=1,524,000 inch-pounds — 874,200 inch-pounds=649,800 inch-pounds.

To find the section modulus of the beam, divide the bending moment by the stress per square inch allowed for steel—16,000 pounds. 649,800 ÷ 16,000=41 approximately. A twelve-inch I-beam, weighing forty pounds per foot will be strong enough to carry the loads. From the above calculations, it can be seen that it is much simpler to use foot-tons rather than inch-pounds.

There are all kinds of conditions where concentrated loads occur. When there is framing around elevator shafts, and other cases where beams frame into girders in a manner that gives unsymmetrical loading, it is necessary to use the methods employed in this article. The method of drawing bending moment diagrams and the considerations involved in designing a built-up girder will be taken up in the next number. For the present it would be well for the architect to become thoroughly acquainted with shear diagrams and points of maximum bending moments.

THE LE BRUN TRAVELING SCHOLARSHIP

WON BY JOHN R. LAUTENBACH

THE Committee on the Le Brun Traveling Scholarship of the New York Chapter of the American Institute of Architects announces that the scholarship for 1914 has been awarded to John R. Lautenbach of 16 East Forty-seventh Street, New York. Honorable mentions were given in the order named to Charles G. Beersman, Steward Wagner, and Jerauld Dahler, all of New York City. Twenty-four designs were submitted.

The following was the program:

It is assumed that the City of New York has decided to embellish the Columbus Circle at the southwest corner of Central Park, New York City. With that end in view, it may further be assumed that the present buildings are razed to give way to others.

The accompanying print shows the plan of the Columbus Circle, as it is at present. The problem is to design new buildings in better relation to, and harmonizing with, the Columbus and Maine Monuments, to rearrange the car tracks, provide a system of lighting, and designs for the necessary kiosks and shelters, incorporating them into one general scheme that will add to the beauty of the plaza.

The main mass of the facades of the new buildings are strictly to be kept upon the present building lines, but in the sidewalk space, varying from 39′-7″ to 40′-1″, the competitor is permitted to exercise his judgment as to the treatment, introducing such architectural features as colonnades, arcades, kiosks, shelters, balustrades, planting, etc., as his fancy and judgment may devise.

The following drawings, and those only, will be accepted and no alternative designs or drawings or flaps of any kind will be received and their submission will suffice to place the author out of the competition:

1. (a) The plan of Columbus Circle and immediate surroundings to the extent shown by the accompanying blue print, at a scale of 32 feet to the inch.

(b) An outline section on the axis connecting the centers of the Maine Monument, Columbus Monument and the block between Eighth Avenue and 59th Street, at a scale of 32 feet to the inch, shall be shown on a margin of the plan.

2. A developed elevation looking southwest, comprising the three blocks between Broadway on the southeast and Broadway on the northwest shown by hatched lines on the accompanying plan, at a scale of 16 feet to the inch.

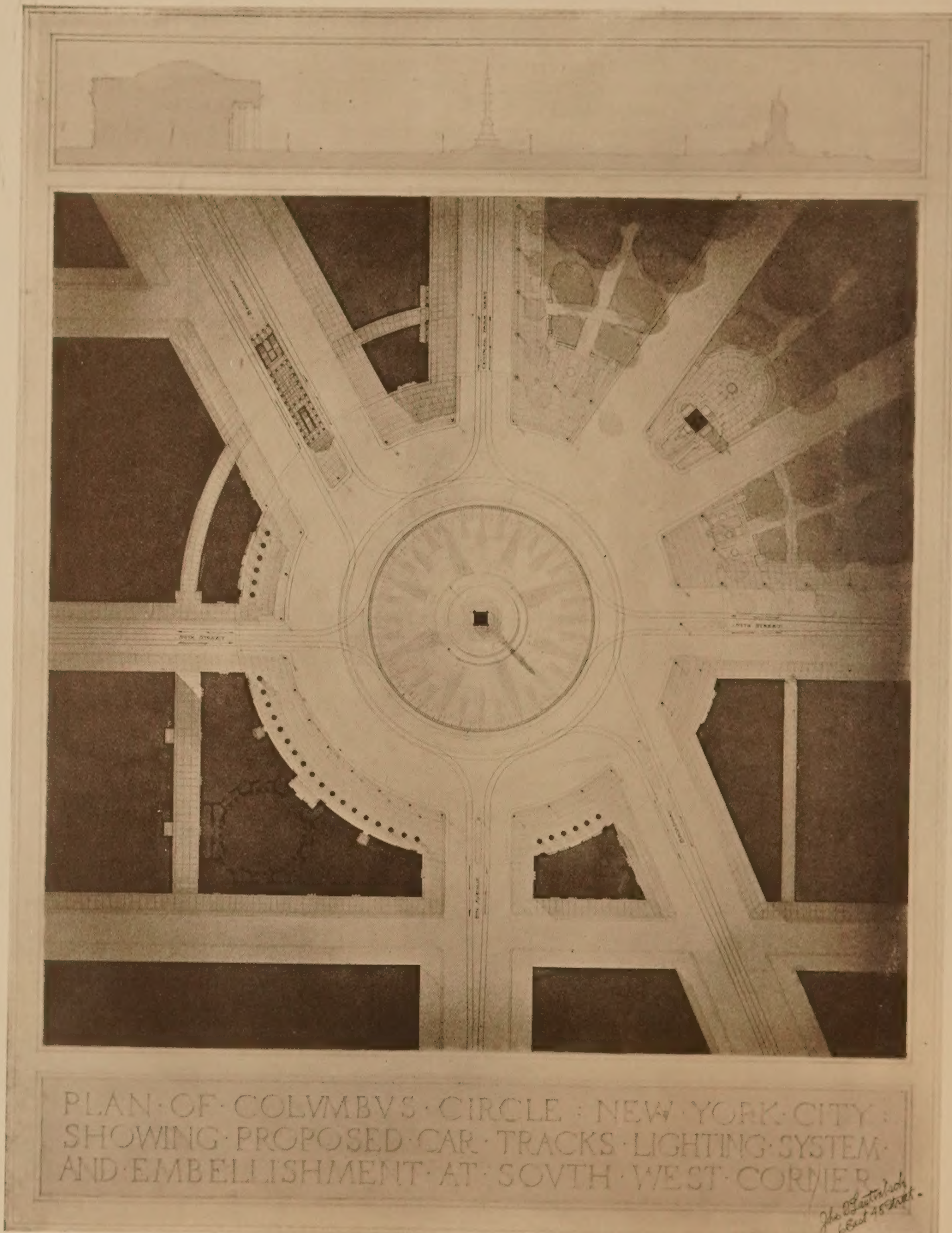
The Columbus Monument should be incorporated in drawing No. 2.

Drawings shall be rendered in color, on white paper, or on white tracing paper, mounted on white paper.

The drawings shall be mounted on mounting board.

The sizes of the sheets shall be, for the plan sheet 26″ x 30″ and for the elevation 16″ x 40″; the width of borders

(Continued page 197)



WINNING PLAN, LE BRUN TRAVELING SCHOLARSHIP. John R. Lautenbach.

WINNING ELEVATION, LE BRUN TRAVELING SCHOLARSHIP. John R. Lautenbach.

(*Continued from page 195*)

and size of mounts are left to the taste of the competitors, but they are requested to refrain from submitting mounts of excessive size.

Drawings shall be signed with the name and address by their authors.

Designs may be accompanied by a brief typewritten signed description.

This scholarship was founded by Pierre L. Le Brun, the architect of the Metropolitan Life Building, and is awarded every other year. The first award was made in 1912.

THE ÆSTHETICS OF PLAN

BY CHAS. C. PITTMAN

Not only is plan as important, æsthetically, as elevation, but in truth is more so.

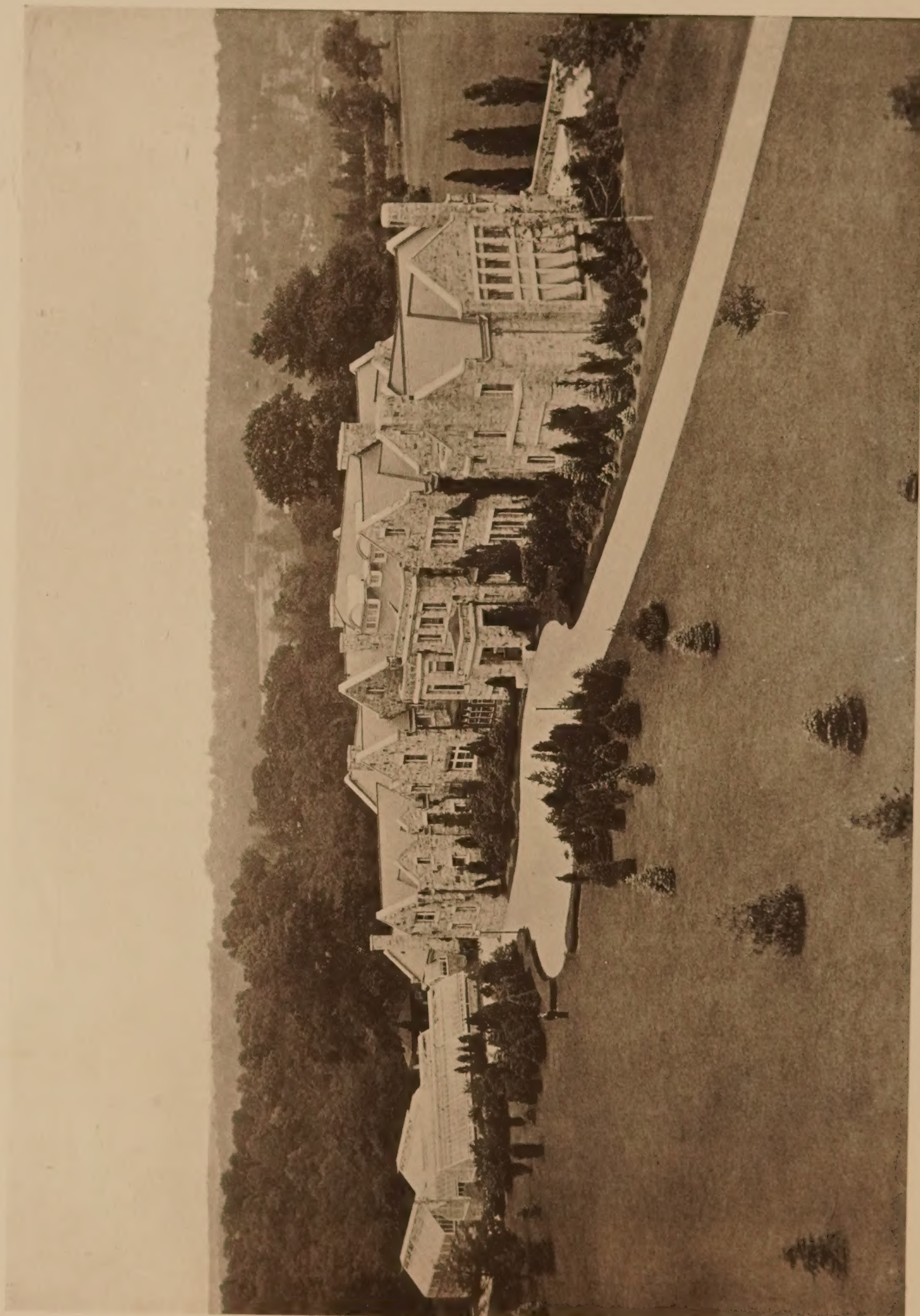
ARTISTICALLY drawn, the plan of a great building presents itself as an object of real interest. The elemental geometric figures—the square, the octagon and the circle—the varied proportion of area, and the ryhthmic play of line arrest the attention even of the layman, and certainly if there be anything ignoble in the plan it will challenge abhorrence as an outrage on real architecture. The Byzantine architects were great planners. More than most, perhaps, they had an eye for beautiful basic outlines for their buildings, as we see in St. Vitale, or St. Irene, and many another church of that era.

So much the architect, at any rate, will admit. And yet the true import of æsthetic planning is so frequently ignored. We have even heard it denied that plan has any concern with the ultimate effect of architecture, save setting out the main masses and outlines, and determining the position of gables, windows, and other features. That, surely, is a strange view of design in architecture. Not only is plan as important, æsthetically, as elevation, but in truth it is more so. An elevation is, so to speak, unnatural. In itself, no doubt, it is the embodiment of truth and of the real, but does not present a building as any building ever can or does appear. Now, while a building has but one elevation, or one set of elevations, it has often numerous plans, as we understand the term, and, æsthetically, an infinite number of plans, and can be horizontally sectionized at an infinite number of positions from a horizontal datum, each one of such horizontal sections, where they cut the facade, presenting scope for design and architectural effect.

The argument is best understood and followed by considering that we do not in actual fact, see a cube either as a flat face or a flat face plus a return, but as an affair having side, return, and base, or top—that is, as a solid occupying so much cubic space. Let us follow this a little more in detail, because the idea may be easily overlooked, and that is why some fancy that architectural plan is solely a practical-service medium, having little or no effect on architectural design. Take a Gothic pier broken up into semi-circular shafts, and with square intervening members, with say, one or two bands or strings between base and capital, and the latter with abacus designed in accord with the plan outline of the pier itself. On elevation, all such base, string, and cap, with the stone joint-lines, rule through parallel with the top of a drawing-board. Excepting for lines indicating breaks, the whole is, on elevation, an affair of straight lines, meeting at infinity, the neogeometers will say.

The complete pier is before us. At about five feet from the ground the horizontal lines appear as such; below, the base does not—it shows curve and rectangle. Did not these arise from the plan at that particular height from the floor-line? Has not the mere act of planning, as such, here an æsthetic value? Adepts at perspective-drawing know all this. It is the more, therefore, a matter of astonishment that so little design is conceived in perspective. As we raise our eye upwards along the pier, the joint-lines break in and out more and more, showing the strings as curve and angle—not as straight lines—until, at the cap, we might reasonably ask: Of what value, at this height, is now the elevational design as compared with the planning? The abacus curves are almost circles, the square members are sharp as gravers. Above, again, what of the vaulting? It is all a matter of plan effect here—plan, of course, seen from below, which is as much plan as plan seen from above. Indeed, as we are

(*Continued page 209*)



COUNTRY HOUSE, ADOLPH LEWISOHN, ARDSLEY, NEW YORK

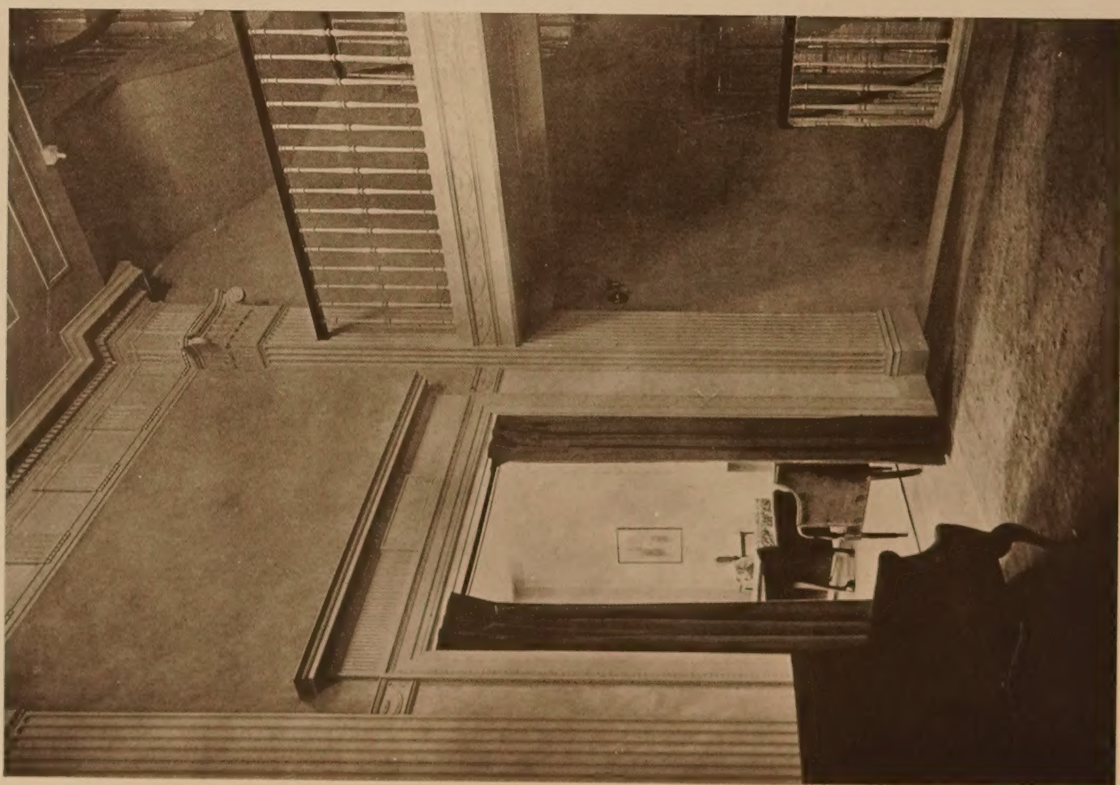
Coulter & Westhoff. Architects.

Dining Room.

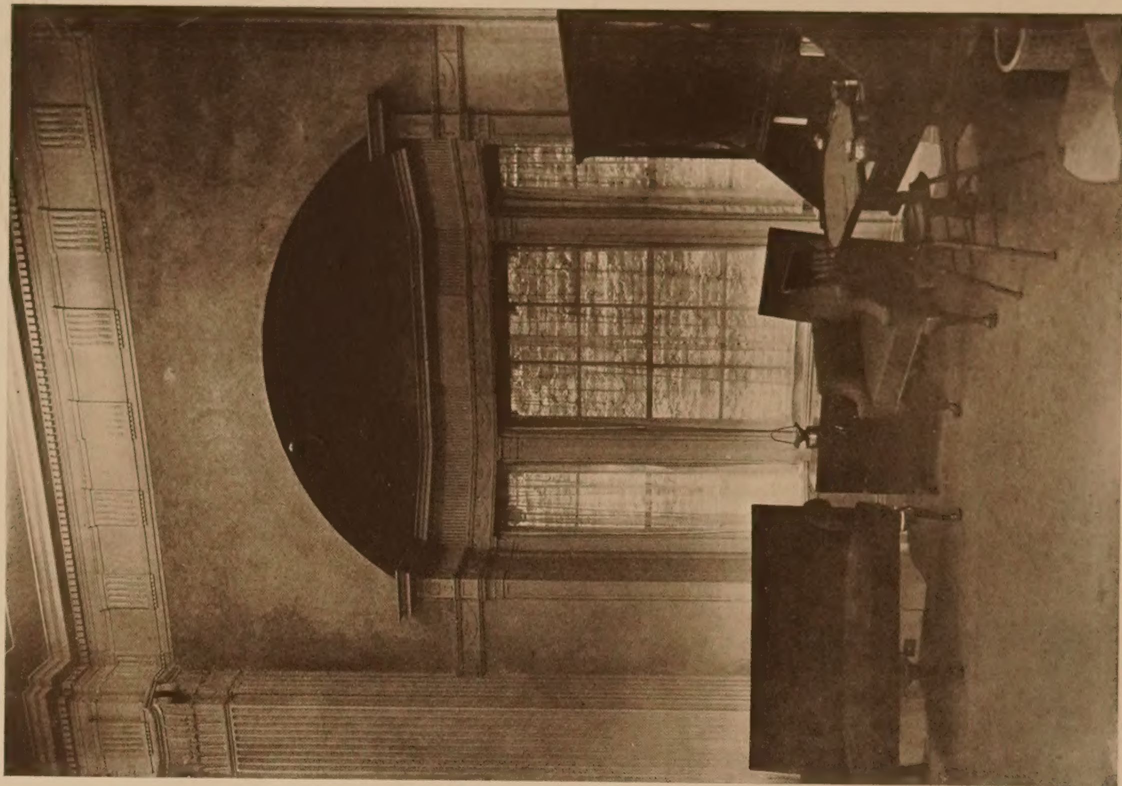
Assembly Room.

WOMENS UNIVERSITY CLUB, 106 EAST 52D ST., NEW YORK.

Nelson & Van Wagenen, Architects.



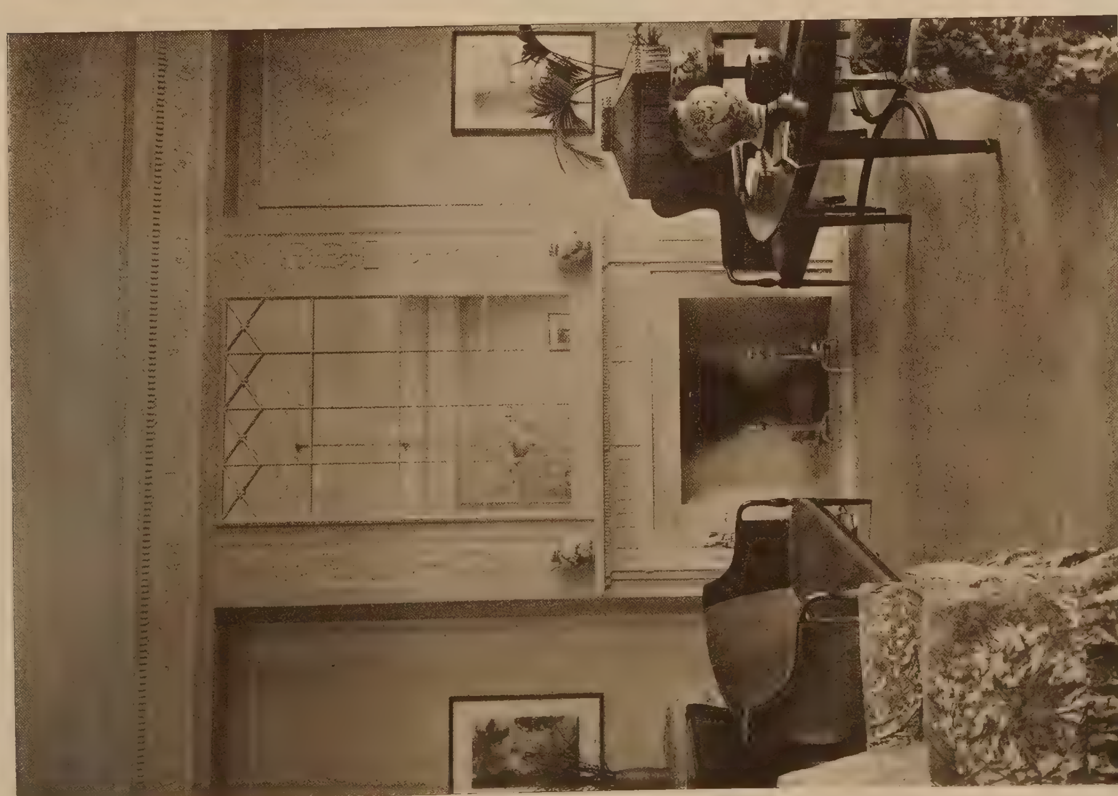
Detail, First Floor Hall.



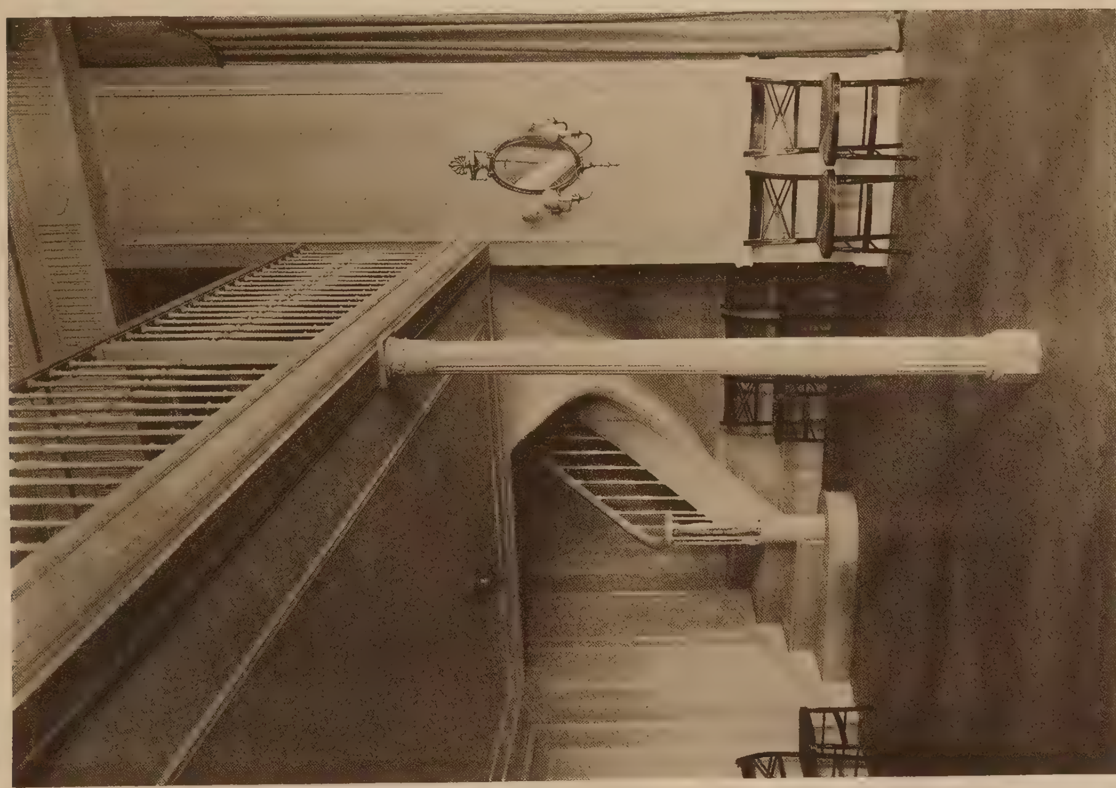
Detail, First Floor Hall.

WOMENS UNIVERSITY CLUB, 106 EAST 52D ST., NEW YORK.

Nelson & Van Wagenen, Architects



Detail, Living Room.

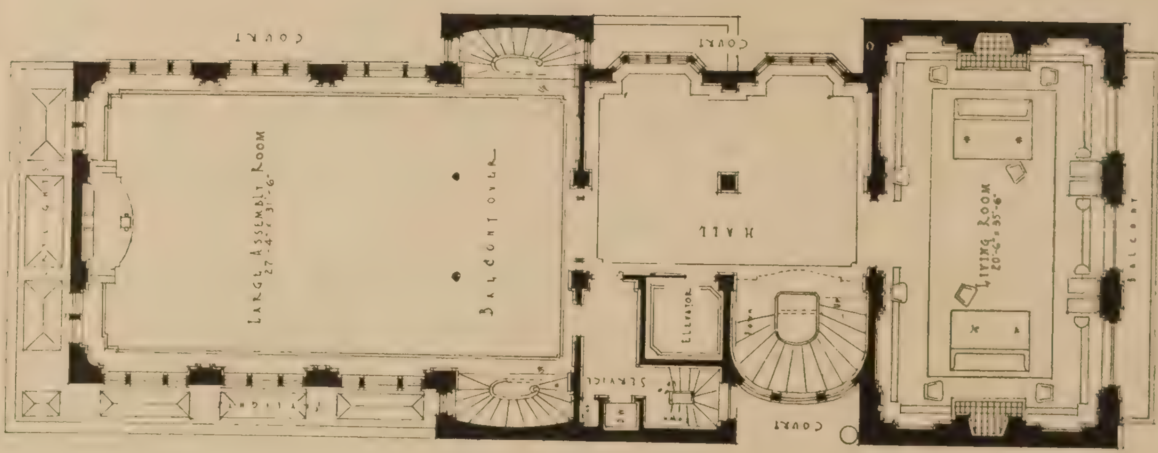


Detail, Assembly Room.

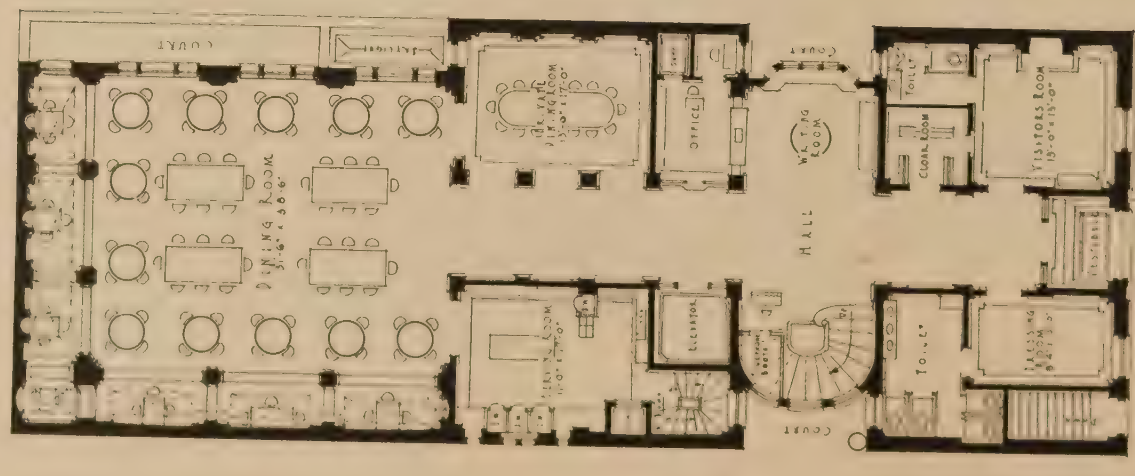
WOMENS UNIVERSITY CLUB, 106 EAST 52D ST., NEW YORK.

Nelson & Van Wagenen, Architects.

Typical Floor.



First Floor.

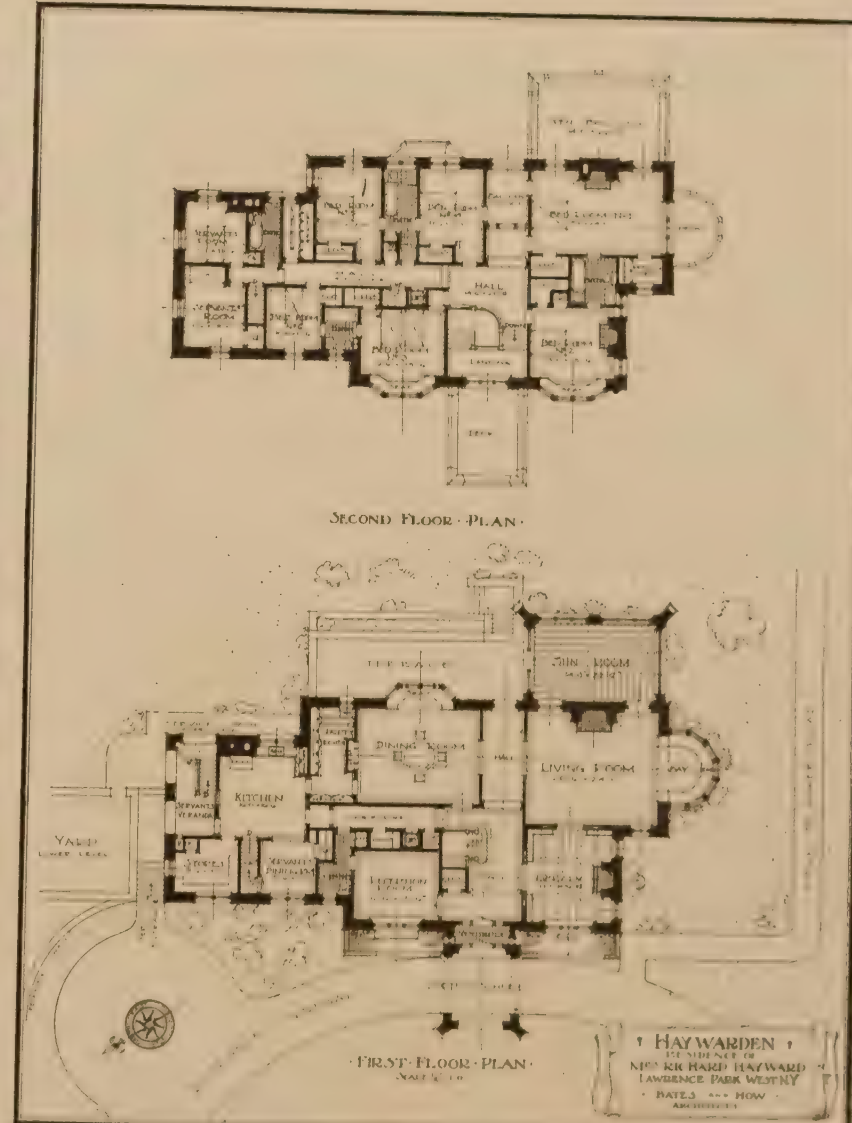


Ground Floor

Nelson & Van Wagenen, Architects.

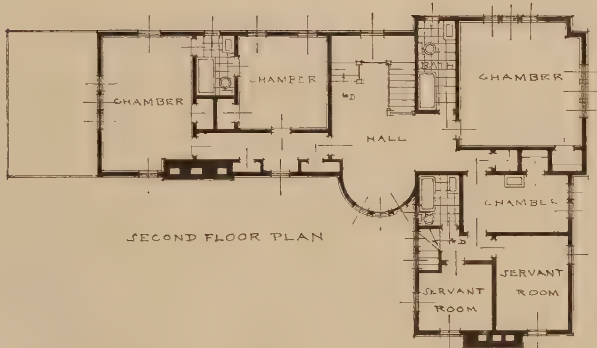
PLANS, WOMENS UNIVERSITY CLUB, 106 EAST 52D ST., NEW YORK.

HOUSE AND GROUND PLAN, MRS. RICHARD HAYWARD, LAWRENCE PARK WEST, N. Y. Bates & How, Architects.

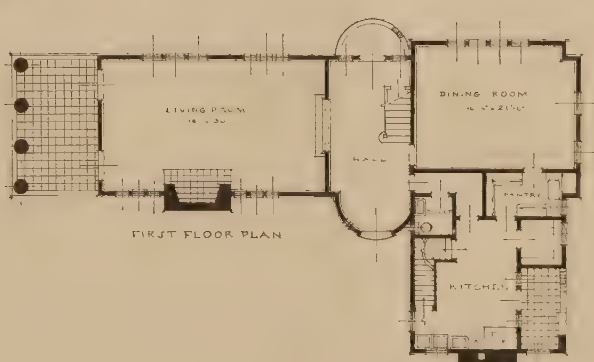


HOUSE AND PLANS, MRS RICHARD HAYWARD LAWRENCE PARK WEST, N. Y.

Bates & How, Architects



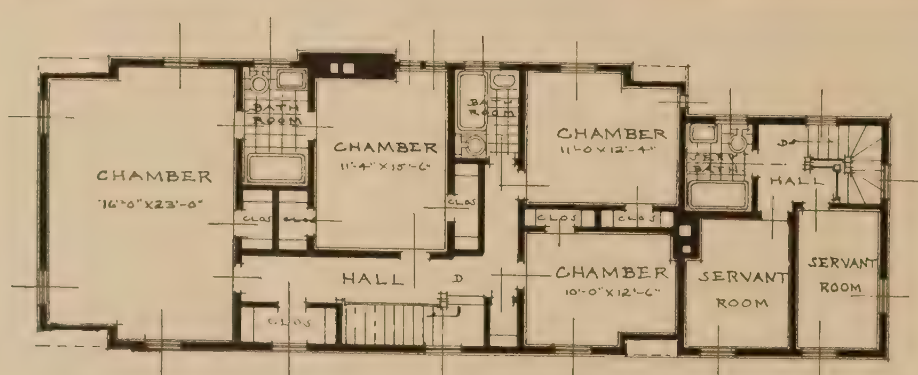
SECOND FLOOR PLAN



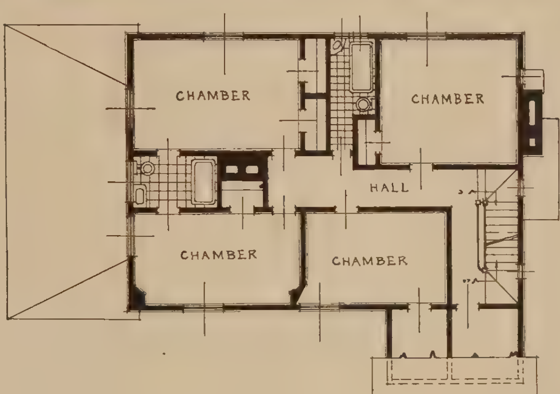
FIRST FLOOR PLAN

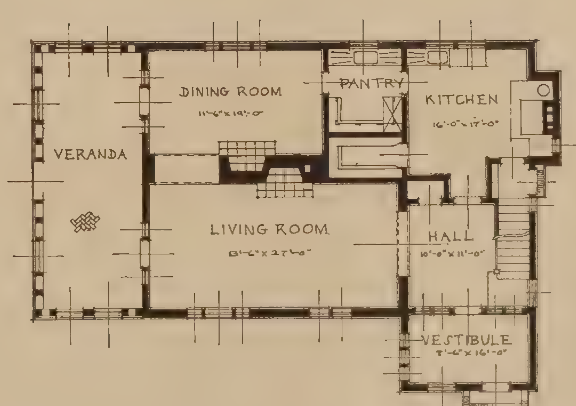
HOUSE, JOHN R. HOYT, GREAT NECK, L. I.

Caretto & Forster, Architects.



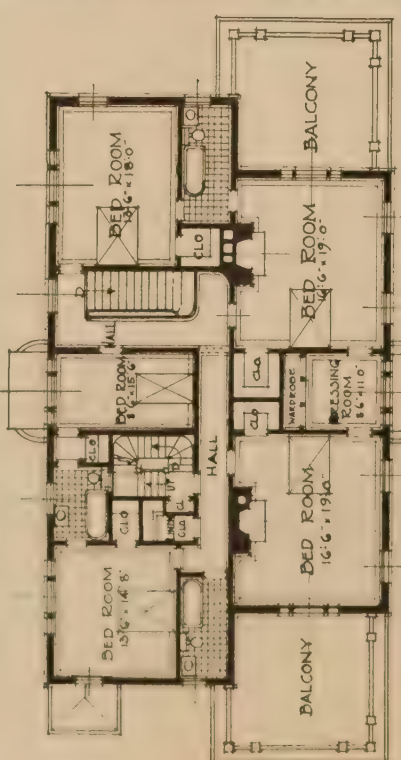
HOUSE, CHAS. W. BRAZIER, GREAT NECK, L. I. Caretto & Forster, Architects.





HOUSE, WALTER J. VREELAND, GREAT NECK, L. I.

Caretto & Forster, Architects.



· SECOND · FLOOR · PLAN ·

· FIRST · FLOOR · PLAN ·

HOUSE AND PLANS, E. A. RIOTTE, LAWRENCE PARK WEST, N. Y. Bates & How, Architects.

(Continued from page 197)

only some 5ft. 8in. in average height, that must be the natural way in which we see plan—unless, indeed, a man is prepared to stand on his head.

In the Classic style, the importance of skilled architectural—as distinct from practical,—planning is greater than in the case of the Gothic manner, which is so largely concerned with outline. Little of the beauty of the capitals of the old "orders" is displayed on geometrical elevational drawing. Take the so-called Roman Ionic, the great beauty of which depends on the harmonious contrast of incurving abacus to round of necking, the angular disposition of the volutes, and the circular wreath of egg-and-tongue. Nothing of the true effect of this appears on elevation. It is only when the cap is reared far above our heads that its real beauty and grace are revealed. This, in greater part, is the resultant of plan. It is obviously not all plan; for, if this were so, the geometrical plan-drawing of the capital would display all its beauty. We may judge from such drawing that the effect of the design promises to be good, the order, symmetry, and contrast of the outline geometry indicating something that, in the solid stone, will afford eye interest. Again, the beauty of the Doric cap is foreshadowed in its plan, if we draw this, and indicate correlatively, the square abacus, circular echinus, and the regular,, seriatim flutings of the shaft. It is to the plan-detail that we are here indebted for the beautiful contrast of angular abacus with soft and rotund echinus; and yet further, that subtle channelling, just before the ending of the upward run of the flutes, of little interest on elevation shows in perspective—when we can see and appreciate plan effect—the graceful contours of the column-enwreathing flutes. Points like these we should do well to hold in mind; nay, unless we work in full faith and knowledge of the potency of architectural planning our best efforts at original design must needs be imperfect and lacking in solidity. To go close under a facade and look upward is no doubt a crucial test of the capability of the designer to appreciate the value of architectural plan. We may thus discover at once, whether he is a mere superficially-minded elevationist, or if he recognizes that architecture is essentially something wrought out in the solid.

If one may suggest any practical rule, it might be discovered in the observation that straight lines, fundamental in all practical planning, such as we lay down by second nature with the tee-square, should be considered the base of, and foil to, less grave design. No doubt reckless and wanton breaking of frontage and facade is a more serious error than excessive restraint in architectural planning. In failing to maintain simple and plain main masses, we lose dignity, which seems to reside principally in straightness and squareness. To introduce curved forms on an excessive scale seems frequently to vulgarize smaller curved forms legitimately enough introduced. Therefore, while we regard it as an infallible sign of the master hand when we find an appreciation of the value of architectural plan, as differentiated from practical building plan, mere abandon, in this matter, may indicate want of gravity and lack of refinement of idea. However this may be, the want of the age seems to be a little something breaking in and out of our habit-made tee-square parallelism. It might be said that the potential beauty and interest in an elevation is a measure of the thought instilled into the horizontal sections—the architectural plans; since we have seen that plan æsthetics suppose an infinite number of such, and so are not to be scheduled as "ground," "first," "second," etc. The fact is, we make our perspectives too late—when the building is completed or the designed settled. The real Masters of our Art knew that, prepared when the design approached completion, they served a really practical purpose.

BOOK REVIEW.

A Model Housing Law.—Lawrence Veiller. 1914. Russell Sage Foundation. New York.

While this book is called "A Model Housing Law" it is so only in the sense of being a working model upon which others may build. It is in no sense meant to be an ideal or perfect statute. It perhaps can be best described as "canned legislation." Its purpose is to save persons interested in housing reform many years of effort, and if rightly used should accomplish this purpose. It is intended to make unnecessary the painful operation of collecting the housing laws of all the different cities and states throughout the country; preparing a comparative digest of them, and slowly and painfully setting to work to construct a new law from these elements, cutting a piece here and adding a patch there, the result being a crazy-quilt of legislation which does not accomplish what is desired.

As all the housing laws in the United States are based upon two models, either the New York Tenement House Law or the present author's Model Tenement House Law, published in 1910, it at once appears that there is little advantage to any community in thus collecting the laws of the different states and cities. At best all that one can get from them is to discover the local variations that have been made from the parent stock.

As a rule these local variations hinder rather than help. They frequently mean nothing more than a concession made to some individual on a local committee who has in mind some particular type of house and who declines to agree to a report or to support proposed legislation unless the particular point which he has in mind is favored. Concessions of this kind when copied in other communities without an understanding of the reasons which led to their enactment do incalculable harm.

In "A Model Tenement House Law," the disadvantages of this method of procedure are pointed out. It may not be amiss to repeat some of the warnings given there.

Writing a housing law is a difficult task. It requires much time and effort, and a good deal of technical knowledge. As usually done it is undertaken by one or two public-spirited citizens who come to the task generally unprepared. Unless guided by the experience of others the results of this kind of effort are apt to prove disastrous. The law prepared under such methods is as a rule found inadequate when put into practice. It is then discovered that many important matters have been overlooked, that some parts have been so drawn as not to accomplish what was intended, that others are so involved that they are understood neither by the officials who have to enforce them nor by the citizens who are called upon to obey them, and that there are loopholes in the law by which it may be easily evaded and often its whole purpose defeated. It is because of these considerations that the Model Law has been evolved.

All those enactments which any city would wish to make to regulate past, present and prospective housing evils have been included. It has been prepared for practical use by laymen, as well as by lawyers and public officials, and has been kept as simple and concise in form as it is possible to make it. Housing laws deal with the construction of new buildings, the alterations of existing ones, and the maintenance of all, and are therefore used by many different classes in the community: builders, architects, plumbers, owners, tenants, social workers. In most laws, especially building codes, the provisions which relate to different classes of buildings are jumbled together and the person using them is compelled to hunt through the whole law to find that part in which he is interested.

In this respect the Model Law represents a great advance. The various provisions have here been so classified that each person can quickly and readily find those matters which interest him: A builder need only consider the provisions of one chapter of the law: namely, that relating to New Buildings. A man wishing to alter his house will

find everything bearing on it in one separate chapter entitled Alteration; the landlord will find grouped together under Maintenance, in another chapter, all those provisions which govern the maintenance of such houses; and here two tenants and social workers will find what they want to know.

The law is accordingly divided into six chapters: Chapter I, General Provisions (including Definitions); Chapter II, New Buildings (divided into three divisions: Title 1, Light and Ventilation; Title 2, Sanitation; Title 3, Fire Protection); Chapter III, Alterations; Chapter IV, Maintenance; Chapter V, Improvements; and Chapter VI, Requirements and Remedies.

Those seeking housing reform should realize at once that there is no way to enact a short housing law which will be adequate. There is no escape. If the conditions are to be adequately dealt with, the housing law must deal with all the important phases of the problem. No short cuts are possible.

A housing law to be appropriate should necessarily be adapted to local conditions. What is necessary and practicable in one city may not be necessary in another. In order to make such local adaptation easy, the plan has been adopted of printing in capital letters those standards which may vary in each city; thus, in the provision dealing with the percentage of lot which may be occupied, in the Model Law this has been fixed at SEVENTY per cent. in the case, for instance, of interior lots not over 60 feet in depth. Some cities may wish to impose either a higher or a lower standard, to make this amount say 60 or 75; all that each city needs to do under the scheme of this law is to change the one word "SEVENTY" and leave the rest of the section as it is. The convenience of such a plan is obvious.

Where there is no featuring of a standard in this way it means that the requirement as written is deemed right for every city and should be enacted without change.

Too much emphasis cannot be placed upon adhering *strictly* to the phraseology and punctuation employed in the Model Law. Efforts should not be made to "improve" or "simplify" it. Every word, every comma has been weighed and has its exact and definite meaning. Many of the provisions have stood the test of many years' enforcement and interpretation.

Following each section of the Model Law will be found copious notes and illustrative diagrams. While it is true that there are few sections of the law to which such notes are not appended, yet the plan has been to make no unnecessary comment but only to discuss those points which experience has shown are likely to give rise to difficulty and concerning which those using the law should be fully informed. The notes are in the form of a running commentary on each section, pointing out where there is any doubt, the reasons which have caused its enactment and what is intended to be accomplished by it; also calling attention to ways in which its meaning may be misinterpreted and explaining wherever necessary to the lay mind all technical points involved.

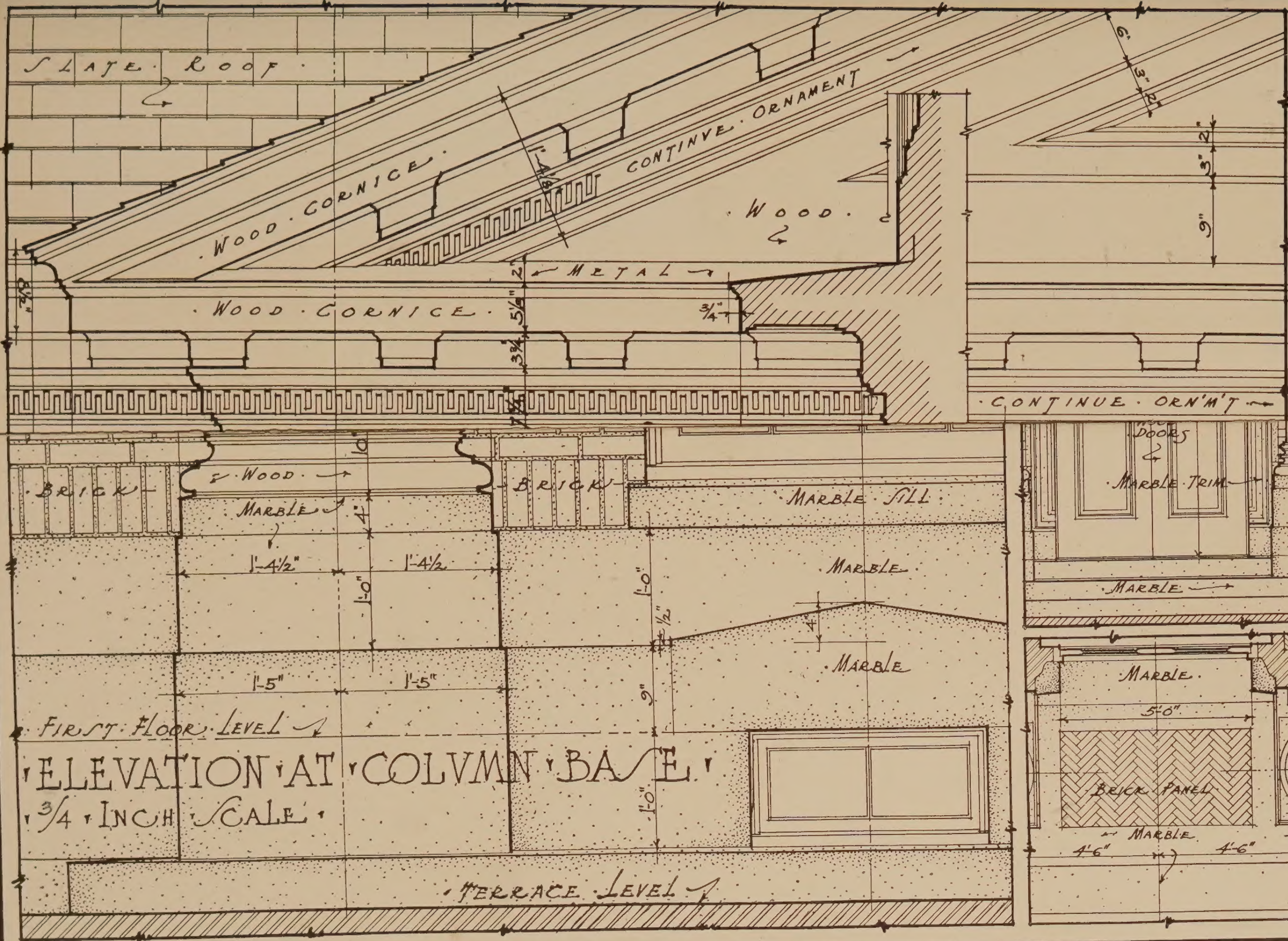
Similarly, the illustrative diagrams which accompany the text are employed where it is felt that without them what is intended will not otherwise be plain, especially to persons not familiar with the technical aspects of the problems involved. These diagrams will be more useful to the layman than to the architect or builder, but will it is hoped prove useful even to them.

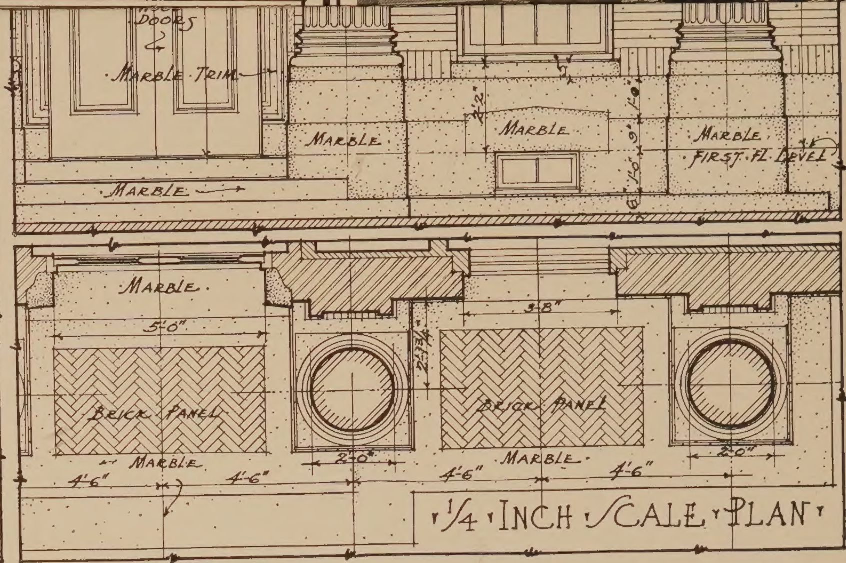
To persons especially familiar with the technical details of housing laws many of these notes may seem superfluous, but it should be remembered that the Model Law will necessarily be used by many persons who do not have this technical equipment.

In addition to these explanatory notes it has been thought wise to build "a flight of steps" both up and down from each of the more important sections. In other words, while each section of the Model Law represents the best consensus of opinion as to what it is desirable and practicable to adopt, it is recognized that it will not always be possible for each city to enact every provision as written in the law. Concessions will necessarily have to be made to meet the views of various persons in each community, and it is important, therefore, for the housing reformer who is working for this result to know where he may safely make concessions and how far it is wise to go. In order to aid him to the greatest possible extent a flight of steps has been built leading down from each section. In other words, where concessions can be made a series of "Concessions" is indicated after the explanatory notes, and the exact phraseology of each concession is given.

On the other hand, it is also recognized that in many cities it may be possible to adopt higher standards than those established in the Model Law. There are many sections in which undoubtedly it would be wise if higher standards could be adopted. A flight of steps upward has therefore similarly been erected from each section and a series of "Variations" appended to those sections where it is believed that higher standards can be adopted. Here, too, the exact form of each variation is given in precise terms so as to aid those using the law to the greatest degree.

Equipped in this way, thus prepared to make the law stronger or weaker as may be necessary in each locality, it is believed that the housing reformer will be furnished with a complete armory of weapons with which to wage his fight.





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